DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
690 Walnut Ave.St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 13.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-008055
Date Inspected: 30-Jul-2009

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Oregon Iron Works Clackamas, Or.

OSM Arrival Time: 700
OSM Departure Time: 1530
Location: Clackamas, OR

CWI Name:	Mike Gregson, Jose Salazar	**CWI Present:**	☑ Yes ☐ No
Inspected CWI report:	☐ Yes ☑ No ☐ N/A	**Rod Oven in Use:**	☐ Yes ☐ No ☑ N/A
Electrode to specification:	☑ Yes ☐ No ☐ N/A	**Weld Procedures Followed:**	☑ Yes ☐ No ☐ N/A
Qualified Welders:	☑ Yes ☐ No ☐ N/A	**Verified Joint Fit-up:**	☑ Yes ☐ No ☐ N/A
Approved Drawings:	☑ Yes ☐ No ☐ N/A	**Approved WPS:**	☑ Yes ☐ No ☐ N/A
		Delayed / Cancelled:	☐ Yes ☑ No ☐ N/A

Bridge No: 34-0006
Component: Hinge K Pipe Beams

Summary of Items Observed:

The Quality Assurance Inspector Sean Vance arrived on site at Oregon Iron Works, Inc (OIW) in Clackamas, OR, to randomly observe the in process welding of the Hinge K Pipe Beam assemblies. The QA Inspector arrived on site to randomly observe the OIW Quality Control (QC) Inspectors in process and completed visual and nondestructive testing. Upon the arrival of the QA Inspector the following observations were made:

OIW Fabrication Shop-Bay 3
Hinge-K Pipe Beam Assembly 102A-2: 7/30/09
a111-2 Forging to a110-2 Base Plate
QA Inspector witnessed welder #H49, Mr. Rick Hinkle, performing FCAW “inter tacking” of various stiffeners on the PJP and fillet weld stiffeners to the a111-2 forging and a107/b106 stiffeners, in the vertical position. QA Inspector noticed QC Inspector Jose Salazar was present to monitor pre-heat temperatures and had recorded in-process welding parameters of 240 amps and 25.2 volts. QA Inspector randomly recorded pre-heat temperatures of approximately 350 degrees Fahrenheit and noted that Mr. Hinkle appeared to be in compliance with the applicable welding procedure specification (WPS 3050).

Hinge-K Pipe Beam Assembly 102A-3: 7/30/09
a111-3 Forging to a110-3 Base Plate
QA Inspector spoke with lead QC Inspector Mike Gregson and Mr. Gregson explained that the critical weld repair (CWR #2244-006) on the a111-3 forging to a110-3 base plate, weld joint designated as W2-12/W2-13 (AWS D1.5

TC-U9a-S) was in progress. Mr. Gregson explained that the backgouging on the three repair areas was completed by welder #J6, Mr. Craig Jacobson and QC Inspector Jose Salazar had performed 100% visual and magnetic particle testing on the backgouged areas and found no rejectable indications. QA Inspector reviewed the applicable ultrasonic testing report (UT-2244-31) associated with these three critical weld repairs and noted that QC Inspector Rob Walters had previously located the three rejectable indications utilizing a 70 degree transducer angle from face “A”. QA Inspector noted that Mr. Walters had recordable depths on the ultrasonic testing report as follows: Indication #1 (65mm deep/40mm long), indication #2 (59mm deep/55mm long), indication #3 (68mm deep/80mm long). QA Inspector measured the excavations (see attached pictures below) and noted that the excavations appeared to be in compliance with CWR #2244-006 and ultrasonic testing report (#2244-31). QA Inspector performed 100% visual and magnetic particle testing on the excavations and found no rejectable indications. QA Inspector noted that welder #J6, Mr. Craig Jacobson appeared to be in compliance with the applicable welding procedure specification (WPS 3048).

Hinge-K Pipe Beam Assembly 102A-4: 7/30/09
a111-4 Forging to a110-4 Base Plate
QA Inspector noticed that OIW production personell were resuming grinding and weld clean-up, on the PJP and fillet welds stiffeners to a111-2 forging and a107/b106 stiffeners. QA Inspector spoke with lead QC Inspector Mike Gregson and Mr. Gregson explained that OIW production personell were blending the weld start/stops, removing weld spatter and repairing undersize welds in specific areas, which were previously marked by QC Inspector Jose Salazar. Mr. Gregson explained that the completed fillet and PJP welds on the radial stiffeners, which were found to be visually acceptable per AWS D1.5 and contract requirements, were in process of 100% magnetic particle inspection by QC Inspector Jose Salazar. Mr. Gregson also explained that QC Inspector Jose Salazar had found a rejectable linear base metal indication during the magnetic particle testing on a111-4 base plate (see attached pictures below) and a critical weld repair submittal was in process to potentially grind and repair this linear indication.

OIW Fabrication Shop-Bay 6 (ESW Overlay Process)
Hinge-K Pipe Beam Fuse Assembly 120A-1: 7/30/09
a124-6 Half Fuse to a124-7 Half Fuse
QA Inspector noticed that the stainless steel overlay welding was in-process, on this fuse assembly 120A-1. QA Inspector witnessed welder #F17, Mr. Igor Frolov, performing electro slag welding (ESW) in the flat position, utilizing Soudokay brand Soudotape 316L stainless steel consumable strip. QA Inspector noted that the first overlay weld passes were 100% complete and the second layers were approximately 50% complete. QA Inspector noticed QC Inspector’s Mike Gregson and Jose Salazar were present, to verify in-process welding parameters (amps/volts) and monitor in-process continuous pre-heat temperatures. QA Inspector spoke with QC Inspector Jose Salazar and Mr. Salazar explained that welding amps were recorded as 1150 amps/25.2 volts, with travel speed at 254 mm/minute and a pre-heat temperature of approximately 70 degrees Fahrenheit. QA Inspector verified Mr. Igor Frolov was currently qualified for this welding process/position and randomly recorded pre-heat temperatures of approximately 70 degrees Fahrenheit. QA Inspector noted that Mr. Igor Frolov appeared to be in compliance with the applicable approved welding procedure specification (WPS 7003). See attached picture below.

A&G Machining
Hinge-K Pipe Beam Fuse Assembly 120A-3: 7/30/09

a124-12 Half Fuse to a124-10 Half Fuse

QA Inspector arrived at AG Machining on this date and noticed that A&G machinist was in-process of “trial” machining this fuse assembly 120A-3. QA Inspector spoke with A&G machinist and A&G explained that the final “trial” cut pass was in progress with a outside diameter of 1921.5mm.

Note: After the “trial” machining is completed throughout this week, this fuse assembly 120A-3 will be transferred back to OIW and OIW QC Inspectors will perform preliminary inspections on the ESW weld passes. OIW will then perform any necessary welding/grinding repairs on the overlay, prior to final machining by AG. Once accepted by OIW, this fuse assembly 120A-3 will be eventually transferred back to AG Machining and AG will machine a final outside diameter of 1920mm (+/- 1mm), per contract requirements and OIW approved drawings. See attached picture below.

Material, Equipment and Labor Tracking

QA Inspector Sean Vance performed a verification of material, personnel and equipment involved with the project. The QA Inspector observed at Oregon Iron Works: 6 OIW production personnel and 2 QC Inspectors.

The QA Inspector noted the following personell were present at AG Machining: 1 Machinist.

WELDING INSPECTION REPORT

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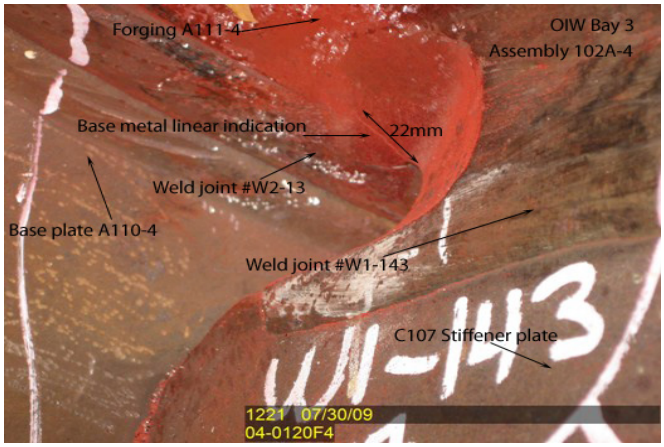

Summary of Conversations:

As noted above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

Inspected By:	Vance,Sean	Quality Assurance Inspector
Reviewed By:	Adame,Joe	QA Reviewer